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*On the Antiquity of Man and Comparative Geology.* By C. S. WAKE, Esq., F.A.S.L. Abstract. [The paper will appear at length in the *Memoirs*.]

Mr. Buckle states that "climate, food, and soil have originated the most important consequences in regard to the general organisation of society, and from them there have followed many of those large and conspicuous differences between nations which are often ascribed to some fundamental difference in the various races into which mankind is divided." It cannot be denied that there is great truth in this theory so far as it applies to the *development* of civilisation, but it may be doubted whether Mr. Buckle has touched the real question of its *origin*. The climate and soil of a country are dependent on its geographical configuration, but this configuration has a deeper connection with the civilisation of a people than Dr. Buckle's theory allows. Certain physical conditions of nature are necessary for civilisation to flourish, but they must be preceded by another condition which renders both civilisation and the causes of its development possible.

The origin of civilisation has relation to the configuration of continents, and if we would know the cause of the varying capacities of different races for civilisation, we must go to geology to tell us how that configuration had its origin, and how long the influences which are ever acting on the external formation of a continent have been operating. In this we may find some explanation of the influence of *time* as an element in civilisation.

All great alterations in the climate and soil of a country have probably originated in geological change. If, however, there has not been for a long period any such change sufficient to effect an alteration of climate and soil, and if these conditions of existence are unfavourable to civilisation, the people subject to them must, the longer such conditions continue, show less and less capacity for civilisation. We may say, therefore, that a relation subsists between the age of all the great continents and the capacity for civilisation of the aboriginal races which inhabit them. If we compare the physical and mental condition of the various races of mankind with the ages of the continents they inhabit, we find that Australia and its aboriginal inhabitants are equally effete. On the American continent, the *Fauna* and *Flora* of which agree with a still later geological epoch than those of Australia, we find an aboriginal race, which, by its savage nature and the persistence of its incapacity for civilisation, shows itself to be much inferior to the Negro. In the scale of civilisation the Negro may be placed between the American and Turanian races, agreeing with the age of that portion of the African continent he inhabits. Asia, older than Europe, is a younger continent than Africa, and its aboriginal peoples must be placed next below those of Europe in intellectual culture. Of Europe it may be affirmed that, not only has it, in its present geological formation, had a later origin than any other continent, but that its inhabitants have a physical organisation and intellectual development relatively superior to that of any other race.

If it be true that the continent of Australia is the oldest portion of

the earth's surface, it can be well understood how it is that its aboriginal inhabitants are the most uncivilised of the races of mankind. It is not, however, the mere want of civilisation, but the apparent *incapacity* for improvement which has to be explained, and this can be done only by supposing the Australian aborigines to have continued for a vast period of time under the influence of conditions of soil and climate totally unfitted for intellectual development. If these conditions had been improved at an early stage of the race existence, probably the germ of civilisation would have been further developed, but no such change having taken place, the physical structure, and consequently the mental faculties gradually became so fixed in their degradation that it is impossible they can now regain their original capacity. On all the other great continents except Europe we see analogous phenomena, although in the case of their aboriginal inhabitants the arrest of development has not occurred at so early a stage of the race existence.

If there be such a relation between the age of a continent and the condition of its inhabitants, then on the hypothesis of the unity of man's origin, the antiquity of mankind must be enormous. A period of time prior and in addition to that necessary to give fixity to the physical and intellectual state to which a people had arrived when its mental development was arrested—in other words, to enable its race characteristics to be formed—must be allowed sufficient to enable the primitive people to have overspread the globe. If, however, this be done, there is nothing in the physical or intellectual peculiarities of races to require the supposition of their having had several centres of origin.

How far back in time it is since man first appeared on the earth we can hardly hope to be able to calculate. If we may judge from the place in the human scale occupied by the aboriginal inhabitants of Australia, and from the agreement of its *Fauna* with that of the oolitic period, we may suppose man to have existed from the beginning of the great tertiary period. The peculiar distribution of the races of mankind in the Southern hemisphere would indeed lead us to believe that man had already appeared before the southern continents attained their present geographical configuration.

Thanks were given to the author of the paper.

The Rev. DUNBAR HEATH said that he considered the paper to be one of great interest, and that the subject had been treated methodically, inductively, and scientifically. It was an inquiry, in fact, into the question whether man was derived from one or from many original sources; and the author, in a half-apologetic manner, endeavoured to carry them to believe in the theory of a common origin. To support that hypothesis he employed two implements—time and plasticity. When he took such enormous periods of time as had been named for the accomplishment of his theory, it must be borne in mind that by so doing he totally rejected the common traditional view of the subject quite as much as if he said that man was derived from fifty origins. The field, therefore, was clear from the mists of

tradition, and the consideration of the question was placed on a scientific basis. By the aid of an enormous lapse of time and great plasticity among the early races of man, the author of the paper arrived at the idea that somewhere or other there must have been an uniform race uniformly spread over the world. One great objection to the theory was that Mr. Wake required that the plasticity should have been greatest when man was nearest to his origin, and that if men were changed at one period more quickly than at another, they must have changed at "the beginning." Now if this "beginning" was itself merely a change from an anthropoid into a human period well and good, but if it was a "creation" no hereditary plasticity could have existed as required by Mr. Wake's theory. They were next introduced to the idea of a continent inhabited by uniform people and by uniform *Fauna* and *Flora*. But then it was supposed that certain variations of climate and conditions produced variations of races; and that change of race power was owing to geological development. It was asserted that after the tertiary period climatic zones appeared, and that in consequence of differences of climate men were developed differently; but there were three or four objections to that idea. If there had existed in Australia that uniform race, and Australia was then joined to South America and to other countries, he could not conceive the remotest scientific reason why the Australians who went into Africa should become Negroes, and those who went into a similar climate in the Indian Archipelago and other parts of Asia should become Malays or Chinese, nor why those who went farther north should become Aryans or Esquimaux. Another objection to the theory was, that assuming the geological facts to be as stated in the paper, the author would have them understand that during the tertiary epoch such causes were in operation as to increase the size of the mammals in South America until they became gigantic, and that afterwards they became diminished to their present size; but it was not explained why man did not change in size after the example of the other mammals. There was another difficulty to be accounted for by this theory. It was asserted that all forms of life were the same in the same strata in widely separated parts of the world; but if that were the case in former times, why was it not so with all forms of life now existing; and why at the same period were there such differences as are now observed between Englishmen and Chinese?

Mr. MACKENZIE considered that the author of the paper deserved the best thanks of the Society, for it was written in a high philosophic tone, though there were some points on which he disagreed. According to Mr. Wake's theory Australia was the oldest continent of the world, and that the climate was suddenly changed by nature. He assumed, indeed, an original uniformity of climate and a continuity of land, but the latter was not possible, for with a continuity of land there could have been no water, and it was known that in remote periods islands had risen from the sea and formed continents. Mr. Mackenzie expressed dissatisfaction with the term *aborigines*, which was derived from a small place in Italy, and he thought it would be preferable to adopt the term *autochthones*, a people who were sup-

posed to be the original inhabitants of any country. If Australia were the earliest centre of civilisation they must adopt the doctrine of unity of species, but in that case the causes of the existing differences among the races of man would remain to be explained. He thought that in regard to intellectual capacity there was little difference between the Negro and the Australian savage; perhaps the Negro was the worse of the two, and the Australian did not smell, which was a fact to be accounted for. He thought, also, that the supposition that Australia was the oldest continent was contradicted by the experience of the earliest naturalists and voyagers. The accounts given by the Dutch naturalists and sailors, who took with them the most accurate instruments then made, stated that they sailed over that part of the world now occupied by the continent of Australia in the seventeenth century. He was not, therefore, disposed to regard Australia as the oldest country in the world. With regard to Negroes, it was a known fact recorded by Schmerling, that in 1833 skulls presenting the Negro peculiarities were found in the bone caves of Engis and Engihoul, near Liège, in Belgium, which had been contemporaneous with the mammoth and other extinct animals. He agreed with the author of the paper in assigning an enormous period to the existence of man, but he could not understand how the various changes observable could have been produced in any length of time. As to the Aryans, he was at a loss to understand how they had been civilised, and whence they came. With respect to Japan being considered the Great Britain of Asia, it was stated that the first emigrants to that island found these men covered with hair, inhabiting caves, and that they were an excessively small people. If the first men were small, what became of the theory that all men originally possessed similarity of physical structure and equality of intellectual capacity?

MR. CARTER BLAKE said the remarks of Mr. Heath afforded a severe crucial test of the merits of the paper, as he had examined it methodically, inductively, and scientifically; but what was the value of the facts? In his consideration of the paper he should regard it from three points of view, palæontological, stratigraphical, and anthropological. In the first place, then, with regard to Australia, and to the assertion that the southern continents have the same *Fauna* and *Flora* as in the tertiary period, that theory belonged to the time of Drs. Mantell; and Page and others had since demolished it. Australia does not possess the same *Fauna* as that of the oolite, or even that of the tertiary. Certain characters are the same, but there is no veritable identity of species. It was so with the organic remains found in corresponding strata in England and in other parts of the world. The genera were not always the same, and the species never so. It was stated in the paper that Southern Asia lost during the tertiary period the giraffe and the hippopotamus, which are now confined to Africa; but such was not the fact. There was, indeed, in Northern India a kind of hippopotamus (*Hexaprotodon*) distinct from that of Africa; but there are no indications that the giraffe ever lived in Asia, although its representative the *Sivatherium* did. On a stratigraphical view of the paper, it was still more open to objection. Various geological catastrophes were men-

tioned as having occurred at different periods ; and a large portion of the geology of the paper appeared to have been derived from the work of M. Elie de Beaumont, which modern geologists had not accepted. Such catastrophes were not now recognised ; and that there had been a continuity and uniformity of action was the opinion of geologists of the present day. If the paper were looked at anthropologically, it was equally open to objection. The assertion that there was ground to believe in a common birth-place of man was not warranted by the facts. It would have been better to have seen, in the first place, whether the differences which exist among the various races of mankind are such as could have taken place on the assumption of an enormous length of time being allowed for the change, and to have considered what could reasonably have been expected to have been done by the operation of time. Reference was made to M. Guyot's work, to the effect that the most degraded forms of man are found at the most southern limits of the continents of Asia, Africa, and America. That assumed fact was not true. In Africa the most civilised of the tribes of Negroes are the Hottentots of the south. In Ceylon and Malacca the natives are not inferior to those of a more northern locality ; and in America the exemplification was yet more unfortunate. In Mexico and Peru the people were in an advanced state of civilisation compared with the Indians in the northerly part of America, and the Esquimaux. It was true that in a recent work (he alluded to Mr. Kingsley's *Roman and Teuton*) the contrary opinion was expressed, but no facts were adduced in support of this wild chimera. The southern natives were, in fact, superior ; and the inhabitants of Southern Europe had yet to learn that they were less civilised than those of the north. In his opinion the civilisation of the north was derived from the south of Europe.

Mr. WESLEY observed, with respect to the comparative intellectual faculties of the European and the Negro, that it seemed to him that the capability of civilisation was the one character by which the European was raised above the Negro. He disagreed with the author of the paper in his statement that the difference between the two consists in physical structure and not in mental faculties.

Major OWEN said, in reference to the term species which had been used by Mr. Heath, that a wider term seemed to be wanted to express similarity of the *Flora* and *Fauna* which existed at the same geological periods. There were two distinct similarities to be indicated ; one being a similarity of kind, the other a similarity of times.

Mr. CHARLESWORTH observed that they all agreed that the paper was one of high interest, but discursive. It treated of several subjects, and if there were a weak point in the paper it was the palæontological part. If that part of the paper were printed, he thought it would commit the Society, for the observations and the conclusions drawn from them were diametrically opposed to the present state of the science of geology, and they ought to be cautious about admitting such statements into their Transactions. With respect to the alleged identity of species in the tertiary epoch in various parts of the earth's surface, he observed that there is no identity in the organic remains of

the eocene of this country and America. There was as much specific difference as there is in the living forms ; therefore, the generalisations on that point were fallacious. The assertion that the temperature of the tertiary period was tropical to its close was contrary to fact, for in the latter portions of the miocene and pliocene periods boreal forms of life existed, and though there was the elephant, yet it had a shaggy covering of hair very different from the elephant of the tropics. All the reasoning in the paper, founded on there having been a tropical temperature during the tertiary period, therefore, required revision. Then, with regard to the marsupials, which were stated in the paper to have existed in Europe in the early tertiary period ; there was only one known instance of a specimen of a marsupial having been found in the tertiary strata of Great Britain. Again, as to the remains of supposed monkeys ; there was a jaw found at the same time as the specimen of a marsupial, supposed at first to be that of a monkey, but it has lately been ascertained to have more relation to a pig than to a monkey. He was sorry to see a paper containing matter of so much interest marred by the assertion of facts opposed to what is known at the present day. Mr. Wake should have stated more of the reasons on which he based the relative ages of different continents and their respective periods of elevation. There was great discrepancy of opinion among geologists on those points, and many contradictions. The assumed elevation of the western line of coast of South America by continual rising was very speculative. The attempt to identify the character of a people with the geological character of the country they inhabit was another part of the paper which would not bear examination. As regarded Egypt, for instance, the periodical inundations of the Nile, it might be supposed, must have an effect on the character of the people, but the changes produced by those inundations could not be called geological. That part of the subject should have been treated more in detail.

Dr. HUNT, after complimenting Mr. Charlesworth for his remarks, which he said constituted the speech of the evening, said there was enough in the paper for a fair discussion on a very philosophical subject, and it was one of such difficulty that allowance should be made to any gentleman writing on the question. However unsatisfactory some parts of the paper might be, they were indebted to the author for coming forward to give the explanation of his views. With regard to the alleged antiquity of man, the author, Mr. Wake, said it must be admitted ; but there were no facts stated whereon to claim that admission. Then, with respect to the explanation by Mr. Buckle of the origin of civilisation, the whole of his explanation was that the development of civilisation depended on the bounty of nature. But that was the whole question in dispute. Mr. Buckle contradicted himself, and if he was incorrect in assigning the origin of civilisation to the climate, food, and soil, he was not correct in attributing the development of civilisation to those causes. The explanation of the origin of race-character was the same as of the development of the civilisation of races. But they could not tell either one or the other, and the whole argument had no basis to rest upon. As to whether

geology had any connection with civilisation, that was so large a subject that it would be impossible to enter into it in that discussion. Then, with regard to the assertion that Asia was the origin of civilisation, Mr. Wake said it could not be denied; but on what evidence was that asserted? He (Dr. Hunt), for one, denied it; and he had no doubt there were many others who held the same opinion. What claim had Asia to be called the originator of civilisation? He did not know where it originated, though, perhaps, Mr. Wake did. As to Australia being the centre of man's creation, the same might be said of England or anywhere else. There had been about one hundred and twenty different spots selected for the origin of man; from the Shetland Islands down to Borneo, and for equally good reasons. Then, as to the origin of the Caucasian and Turanian races, no doubt they were different, but he did not see how that helped the argument. Dr. Hunt then read some sentences from the paper relating to the effect of long persistence of unfavourable conditions of life in arresting mental development, and to the equality of the inherent capacities of the Negro and the European; and he proceeded to observe that that assertion proved nothing. It was well-known that the differences had long existed, but the remarks in the paper did not explain the cause; they explained nothing. As to the assertion that there is no ground for saying that the intellectual faculties of the European are in no way different from those of the Negro, it was the exact opposite of what had been often stated in that room. The difference consists in their different instincts. He contended that it had been admitted that the European and the Negro have different instincts.

Dr. HYDE CLARKE observed that there was no evidence adduced in the paper to show the connection between geological and anthropological facts; and he thought that in the present state of knowledge they were unable to deal with that question. With respect to the assumed influence of climate on physical and mental development at the present moment, the author of the paper had not brought forward any facts to substantiate his assertions, and it was all assumption that difference of climate could produce such effects. What, for instance, had been the influence of climate on the various races that have inhabited this island? Various races had inhabited the country, and great varieties of race characters were to be observed; but, according to the author of the paper, they ought all to be the same. It was so, also, in other countries. The same country was found to be occupied by nomad tribes and by civilised people; and the movements of nomad tribes to different parts of the globe recorded in history produced no physical nor mental changes in them. If the population of Australia were the primeval inhabitants of the earth he could not understand how other people, exposed to the same influences, could be so different.

On the motion of Mr. BENDYSHE, seconded by Mr. J. F. COLLINGWOOD, the discussion was adjourned to the next meeting.

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FEBRUARY 19TH, 1867.

T. BENDYSHE, ESQ., M.A., V.P., IN THE CHAIR.

THE minutes of the last meeting were read and confirmed.

The following members were elected :—Joseph Agnew, Esq., 47, Bath Street, Glasgow ; Thomas William Craster, Esq., Middlesborough-on-Tees, Yorkshire ; E. B. Hodges Curtis, Esq., Leasam Park, Rye, Sussex ; Augustus E. G. Perrot, Esq., United States Consul, Gaboon, West Africa ; H. G. Williams, Esq., 2, Torrington Grove, Friern Park, Whetstone, N.

*Local Secretaries.*—John Grattan, Esq., M.R.C.S., Mervue, Belfast ; C. O. Groom Napier, Esq., F.G.S., F.A.S.L., Southwell Cottage, Kingsdown, Bristol ; H. C. Williams, Esq., Ceará, Brazils.

The following presents were announced, and thanks voted for the same.

## FOR THE LIBRARY.

From the Königlich Sächsische gesellschaft der Wissenschaften (Königsberg). Bestimmung der Langen unterscheide. By HANSEN.

Elektrische untersuchungen. By HANKEL.

Bericht der mathem. phys. dassé, 1865-6.

From the Science and Art Department, South Kensington.—Report on Chemical Laboratories. By HOFFMAN.

From T. Bendyshe, Esq., M.A., V.P.A.S.L.—Chart of Mohammedan Inheritance. By ALARIC RUMSEY, Esq.

Cathay and the way thither. By COLONEL HENRY YULE.

The Science of Moderation. By W. CAVE THOMAS.

Fourteenth Annual Report Public Free Library, Massachusetts.

Le Rôle de Jésus et des apôtres. By RABBINOWICZ.

From the Society.—Leipzig Berichte über die verhandlungen der K. sachsichen gesellschaft.

From Norge Kongliche societät Christiania.—Recherches sur la syphilis. By W. BOECK.

Om Spedalskhed. By DANIELLSSEN and BOECK.

Aarsberetning, 1857-8. By HOEGH and LOBEIG.

Norge officielle statistik, 1861-4.

Inversio vesicæ urinaræ og luxationes femorum congenitæ. By LECTOR VOSS.

From the Society.—Transactions of Ethnological Society.

From the Author.—Ueber einige menschliche ueberreste aus der stein periode. By RUDOLF MÜLLER.

From the Author.—Extract from the transactions of the Niederhessen gesellschaft zu Bonn. By Prof. SCHAAFHAUSEN.

## FOR THE MUSEUM.

From Sir Charles Nicholson, Bart., D.C.L., LL.D., F.A.S.L.—Collection of Australian photographs,

From J. P. Morris, Esq., F.A.S.L.—Cast of skull from Ulverstone.

From R. B. N. Walker, Esq., F.A.S.L.—Cast of skull of largest gorilla known.

The discussion on Mr. Wake's paper having been renewed,

Dr. CHARNOCK said, it had been asserted that Europeans who settle in America approximate to the aborigines. But there were several types in America, and to which of these types did they approximate? The theory of the arrest of mental development might be applicable to the Australians, the American Indians, and the Negroes, who appeared to have always remained the same, but he doubted whether the term was usually or properly applied to nations that had once been great; the Hindoos, for example. The author of the paper stated that the peoples of Europe were the most civilised, because that part of the globe was best adapted to civilisation; but was that the case? Again, if civilisation were based upon intellect and morality, then assuredly the Asiatics were quite as civilised as the Europeans. Why, the Hindoos were acquainted with algebra, geometry, metaphysics, and logic, 2,000 years before the Europeans knew their A, B, C. The Hindoo intellect was perhaps the highest in the world. He considered the Turks a civilised people; they were without doubt the most honest, the most humane, the most hospitable, and the most religious people of Europe; and they set a great example to most other nations. But could the Lapps, the Finns, the modern Italians, Spaniards, and Greeks, be called civilised nations? Could the term civilised be applied to a nation of brigands in Northern Germany, a nation the most selfish, the most mendacious, and the most jesuitical in Europe; or to a certain insular nation, that had not yet learnt the sublime art of gastronomy, the most important of all the arts and sciences?

Mr. FRED. COLLINGWOOD wished to ask a few questions, and in doing so he should not touch upon the geological, palæontological, physiological, and psychological points raised during the discussion. He would have liked a definition of the terms used by Mr. Wake which appeared to him somewhat confused. That gentleman had, for example, defined civilisation to be the "final product of human intellectual activity," but that definition conveyed nothing to his mind. Did civilisation consist of the cultivation of the arts and sciences? Was it social science? was it material comfort? or was it simply the occupation of the human mind and the full development of all its faculties? Mr. Wake had compared the Red Indian and the Negro, and considered the latter "superior." If civilisation were simply imitation, then certainly the Negro was the higher. But was that a proper definition? And he had assumed a theory of arrested development to support his theory of the age of the human race. He had wandered over five continents in search of evidence to suit his theory that the earliest races were the lowest. He had argued that the "convulsions" of the earth's surface were conducive to civilisation, the fact being that he was fascinated by analogies, coincidences, and resemblances from which he had made statements not borne out by facts. Mr. Collingwood would remind him that, according to one of the profoundest thinkers and naturalists of the day, "analogy may be a deceitful guide." He was sure it had proved a very deceitful guide to Mr. Wake, and would recommend him to exercise more caution in future speculations. The

paper was of considerable interest and some ability, but he trusted that riper years, a wider research, and more mature judgment would lead the author to reject it altogether.

Mr. WAKE remarked, before addressing himself in reply to objections raised on the former occasion, that Mr. Collingwood had himself nearly given the definition he sought when he asked if civilisation consisted of the arts and sciences. In his opinion, the highest phase of civilisation was now to be found in England. He did not think it necessary to reply to Dr. Charnock, because that gentleman had peculiar notions, and, he continued, "I will pass on to consider the objections to the paper read by me at the last meeting of the Society, which may be classified as *general*, *geological* or *palaeontological*, *physiological*, and *psychological*. It is not correct that the aim of the paper is, as Mr. Dunbar Heath supposes, to enforce the unity of man's origin, and by inference, the doctrine of "special creation." Its aim is to prove the necessary antiquity of man by considerations arising from the existence of *race*, for which Mr. Buckle's theory does not account. The unity of man's *nature* must, however, be insisted on, as there is really no ground on which it can be disputed. The doctrine of "creation" does not concern the question discussed. We have no evidence of Australia being the original birth-place of man; and, therefore, although its aboriginal inhabitants are doubtless the oldest representatives of the human race, mankind must, on the hypothesis of the unity of man's origin, be much older than any particular people now existing. As to the origin of civilisation, if it could be proved that the civilisation of Europe and Asia had different beginnings, it would furnish no evidence of difference of race origin; as civilisations would, doubtless, be developed after peoples became separated. It is true, as Dr. Hunt asserts, that history does not tell us of a period when races did not exist—but this really proves nothing as to the origin of man, seeing that races must have been found long before the period over which history extends. Dr. Hunt says, however, that "long persistence of unfavourable conditions of existence" proves nothing as to the origin of race. It may be so, but to my mind it is the only way of accounting for the phenomena, unless we suppose a primitive difference of type. But *present* is not proof of *primitive* difference. The highest races were at one time in a state of barbarism, and if we could trace the progress of every race to its fountain head we might find that the Negro and the European were originally on a par. The remains of primitive man discovered in Europe support this notion. In relation to the *geological* and *palaeontological* part of the subject, it is objected by Mr. Dunbar Heath, Mr. Charlesworth, and Mr. Carter Blake, that the *Fauna* found in similar strata in different parts of the world are not of the same species. This is of no importance so long as they have a generic relation. Difference of species does not prove non-contemporaneity, nor even difference of origin, but only, according to the theory of Mr. Darwin, separation for a long period from a common progenitor. I ought to have placed the existence of British marsupials in the oolitic period; and, therefore, instead of carrying the present formation of Australia back only to the

early tertiary it should have been referred to the secondary era, which gives that continent a much greater antiquity. Lyell, after mentioning the existence of marsupials in the British oolite, says, "there must have been a vast extension in space of the same marsupial forms during that portion of the secondary epoch which has been termed 'the age of reptiles.'" But Mr. Charlesworth objects that the facts contained in the paper do not agree with the present state of palæontological science, and that the relative ages of the several continents are not sufficiently established. This objection is so important that I shall be justified in re-stating the evidence on which the conclusions of the paper are founded. The test of age I have used is the agreement of the present fauna and flora of a continent with those of a past geological age. If we apply this test to *Australia*, we have the testimony of Sir Charles Lyell that its present fauna and flora greatly resemble those of Europe during the oolitic period. As to *South America*, its fauna and flora have the same general character as those of its latest deposits, which are referred to the early tertiary, and also much in common with the eocene of Europe. The analogy between the present flora, and, it may be added, between the present marine shells, corals, and insects of *North America*, and those of miocene Europe, is so great as to give rise to the idea of the two continents having been united during that geological period. The present formation of *South Africa* appears, from its general character, to be of great antiquity; and it is curious that its flora, although it differs widely from that of all other continents, has great affinity with the flora of Australia. Its fauna resembles generally that of the pliocene, and the same may be said of *Asia*. The Sewalik Hills of Northern India are a miocene range, but the latest Indian deposits are represented by the pliocene alluvium of the Doab, while the table lands of Central Asia appear to be of comparatively recent formation. Notwithstanding the general pliocene character of the Asiatic fauna and flora, those of the southern part of the continent have some affinity with the fauna and flora of Australia and South America; while those of Siberia have a general Arctic character. As to *Europe*, there can be no question but that it has undergone great changes since the pliocene period, and there has been a consequent alteration in its animal and vegetable forms. Turning now to the *physiological* objections, Mr. Dunbar Heath asks, referring to the hypothetical connection between Australia and Africa, why, when those continents were separated, should the primitive Australians have become Negroes. This does not, however, fairly state the case. I do not assert that the Australian aborigines perfectly represent the primitive race of man. I merely say that they and the Negro *may* have descended from a common stock, which was probably less civilised than either of them. But I suppose the Negro to have been derived from the primitive people only through some intermediate type. The Negro has probably originated in Northern Africa, and I should look for the nearest approach to the primitive type among the African peoples in the Hottentot, who may have been connected with the Australian Negroes by a submerged continent. It is hardly within the scope of my paper

to show how races have originated, but the impossibility of doing so, except on the supposition of the non-unity of man's origin, has been so often reiterated, that I would offer the following considerations in support of the notion of race development out of a primitive type:—

1. We see in different peoples of the same stock such diverse physical characters, that we may suppose the causes to which they are due may have resulted in still more important differences, when active through a much longer period.
2. A chief cause of the formation of physical peculiarities is, doubtless, due to the "correlation of growth" pointed out by Geoffroy St. Hilaire, and insisted on by Mr. Darwin.
3. There is a relation between the development of the mind and that of the brain, and, therefore, between that of the mind and of other portions of the organism.
4. This co-action of mind and organism is probably stimulated by the physical conditions of life by which Mr. Buckle accounts for the development of civilisation.
5. A superior race can never have more than approximated to an inferior type, as the former must have diverged before the inferior type became fixed.
6. When a type has become fixed, it is a proof that the race has long continued in one condition.

As to the *psychological* objections—it is, no doubt, true that the fact of the European intellect being capable of higher cultivation than that of the Negro, proves their mental faculties to be different, *if*, as Mr. Wesley asserts, those faculties are the result of the organisation of the brain. In this case, however, there is no such thing as "mind," but merely phases of brain condition. Without some such principle of being as the "mind," however, it is impossible to explain the difference between the animal and the vegetable organisms. Much of the difficulty on this subject has arisen from the inaccurate application of the word "mind," which really refers only to the sum of the results of the activity of the thinking principle, and not to this principle itself. The mind cannot exist without preceding thought, or, therefore, without the organ of thought; but the thinking principle must precede all these, and it is that which is called the *soul*. But how there can be a difference between the "thinking principle" or *soul* of a Negro and that of an European I cannot understand. The difference can only be one of development, which, being dependent on the condition of the brain and other external influences, is not absolutely inherent. The sameness of the thinking principle in all mankind is evident from the phenomena of the child life, which are similar up to a certain stage in all races. It is said, however, by Dr. Hunt that the instincts of the Negro and of the European differ, from which he infers that their intellectual faculties also differ. I suppose by this is meant that the natural tendencies of the European and Negro minds are not the same. This is true to a certain extent, but these tendencies are not inherent, except so far as they have become so as the result of education and habit, which, accumulating strength throughout the race existence, finally become instinctive. They are, in fact, only part of the characteristics which are gradually developed during the race formation. In conclusion, I cannot accept Dr. Hunt's statement that it has been *agreed* that the Negro is naturally inferior to the European. This has certainly been asserted, but this proof has gone no further

than to the *present* mental inferiority of the Negro. This, I admit to be great ; but before we can say that the Negro is naturally incapable of improvement, we must try the effect of improved conditions of life for a period equal to that during which he has existed in a state of degradation, and even then the proof would not necessarily be conclusive.

The CHAIRMAN (Mr. Bendyshe) said that Mr. Mackenzie had, at the last meeting, objected to the term "aborigines" as being derived from a small place in Italy, and had substituted for it the word "autochthones." Now, as the latter meant "made of the earth," while the old term involved no theory but merely a fact, he preferred the former. He then proceeded to thank Mr. Wake in the name of the meeting for his paper and able defence of peculiar opinions.

The following paper was then read :—

*On the Condylus Tertius occasionally found in Indian skulls.* By C. CARTER BLAKE, Esq., F.G.S., F.A.S.L., Curator and Librarian A.S.L.

The skull which I now exhibit is that of a Yanadi, from Strihurreecottah, in Southern India. It presents the character which the late Dr. Halbertsma, of Leyden, termed *condylus tertius*. I believe it will be found that this character is better developed in the present skull than in the ordinary cases cited in the text books.

The researches of Dr. Halbertsma are chiefly known to English anthropologists by an excellent article signed J. B. D. in the *Anthropological Review* for May, 1865, from which I must quote a few passages :—

"Professor Halbertsma,\* says the celebrated anatomist, J. F. Meckel, the third of the name, was the first to fix attention upon a third articular process of the occipital bone in man, occurring on the lower surface of the *pars basilaris*, between the two condyles and behind the so-named *tuberculum pharyngeum*.† The anomaly was not unimportant, since it admits of comparison with the single occipital condyle of birds and scaly reptiles, placed in the median line. Since the appearance of Meckel's Memoir in 1815, the *condylus tertius* has been so frequently observed as to have obtained a sort of citizenship. Meckel noticed it in 1 out of 400 skulls, which does not express the just proportion of its occurrence. Dr. Halbertsma says that he found in 876 skulls, in the Leyden collections, not less than 7 well developed cases, not including those in which there is merely an articular groove for the tooth of the *epistropheus*, or *processus dentatus* of the second cervical vertebra. Of these seven cases, six were in crania from the East Indian Archipelago, and only one in a European. As Meckel's observations must have been made almost entirely upon European skulls, and not oriental ones, it seems likely that the existence of this condyloid process is more frequent in some peoples than in others."

The following are Professor Halbertsma's conclusions :—

\* "De derde Gewrichtsknobbel (*Condylus Tertius*) van het Achterhoofd-been", door H. J. Halbertsma, 1865.

† "Meckel's Archiv," 1815, Band i, s. 644.